

Application/ Control No.: 10/624,002
Examiner: GOLOBOY, James C

REMARKS

The Examiner is thanked for entering the applicants' submission that was filed on September 19, 2008

In paragraph 2 of the Office Action, claims 1, 3, 7, 11-12 and 14-15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kageyama in view of Wulfers.

Reconsideration is requested.

The present invention is directed to a nitrite free grease composition for avoiding an abnormal peeling of a rolling surface of a bearing. The grease comprises a base oil, a thickener, and an additive, where the base oil contains alkyldiphenyl ether oil, the thickener is an aromatic diurea compound represented by formula(2):



R₂ and R₄ are the same or different, and represent each an aromatic hydrocarbon having 6 to 15 carbon atoms, and the additive contains a sodium sebacate as an essential component. Since the grease, composition contains a sodium sebacate as an essential additive, the grease composition has excellent rust preventing properties and provides a long lubricating life at high temperature which prevents abnormal peeling of the rolling surface of a bearing. It is a feature of the grease that it does not contain sodium nitrite which adversely affect

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the environment as it is a precursor of nitrosamines which are toxic as noted in the specification at page 2, lines 20-24.

The Kageyama patent discloses a grease that comprises an alkyldiphenyl ether oil and a diurea compound. Wulfers discloses a grease composition comprising a triazine-urea compound having a new specific structure as a thickener and optionally disodium sebacate as an anticorrosion additive. The grease disclosed by Wulfers is intended for use at high temperatures. Wulfers only discloses the use of disodium sebacate in combination with the triazine-urea compound of Wulfers. The triazine-urea compound is a distinctly different material from the aromatic urea compound recited in the claims of the present application which does not have the triazine groups that are present in the Wulfers triazine-urea compound. Nothing in the structure of the triazine-urea compound makes it obvious to use sodium sebacate in the grease composition of Kageyama.

The test data of Tables 1 and 2 in the present specification provide evidence of the effectiveness of sodium sebacate in extending the life of a bearing and in preventing the abnormal peeling of a bearing. These results are not predicable and point to the unobviousness of the present invention as defined by claims 1,14 and 15 as well as in the claims that are dependent from these claims. For these reasons, it is requested that this ground of rejection be withdrawn.

In paragraph 3 of the Office Action, claim 13 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kageyama in view of Wulfers and further in view of Minami.

Reconsideration is requested.


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The Kageyama and Wulfers patents have been distinguished from the claim invention above. The Minami patent was cited in support of the Examiner's contention that it would be obvious to use the grease of Kageyama and Wulfers in a sealed bearing. The flaw in this reasoning is that the combination of Kageyama and Wulfers do not disclose the applicants' grease and thus there is no specific formulation that is taught by Kageyama and Wulfers that could be used in a sealed bearing.

It is apparent from the working examples in the present specification and the comparative examples that the composition defined in the amended claims provides excellent results in high-temperature and high-speed tests, sudden acceleration/deceleration tests, and rust preventative test. These properties are due to the unique combination of components and their specific inclusion ratios that are defined in the amended claims. The cited prior art fails to point out either of these factors

Favorable consideration and early allowance are respectfully requested and earnestly solicited.

Respectfully submitted,



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